Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

1-19 (Cancelled)

20. (Original) A method of identifying compounds that induce dedifferentiation of lineage committed mammalian cells into multipotent stem cells, said method comprising

(a) contacting a mammalian cell with a test compound suspected of inducing dedifferentiation of lineage committed mammalian cells;

(b) culturing said cells in a first cell culture media, wherein the first cell culture media induces differentiation of the multipotent stem cell into a first cell type;

(c) culturing said cells in a second cell culture media, wherein the second cell culture media induces differentiation of the multipotent stem cell into a second cell type;

(d) determining whether the cells have undergone differentiation into the first or second cell type, wherein induction of differentiation into both the first cell type an the second cell type identifies the test compound as a compound that induces dedifferentiation of lineage committed mammalian cells.

21. (Original) The method of claim 20, wherein the first cell culture medium induces osteogenesis and the second culture medium induces adipogenesis,

and wherein the first cell type is an osteoblast and the second cell type is an adipocyte.

22. (Original) The method of claim 20, wherein the test compound is a member selected from the group consisting of: substituted purines, pyrimidines, quinazolines, pyrazines, pyrrolopyrimidine, pyrazolopyrimidine, phthalazines, pyridazines, and quinoxalines.

23. (Original) The method of claim 20, wherein the test compound is a 2,6 disubstituted purine.

24. (Original) The method of claim 21, wherein induction of osteogenesis is detected by detecting expression of an osteogenesis marker gene.

25. (Original) The method of claim 21, wherein induction of adipogenesis is detected by detecting expression of an adipogenesis marker gene.

26. (Original) The method of claim 24, wherein the osteogenesis marker gene is selected from the group consisting of: alkaline phosphatase, collagen type I, osteocalcin, and osteoponin.

27. (Currently amended) The method of claim 25, wherein the adipogenesis marker gene is selected from the group consisting of: obsese (ob) gene, uncoupling protein (Ucp) gene, peroxisome proliferator-activated receptor γ (PPARγ) gene and CCAAT/enhancer-binding proteins (C/EBPs) genes.

28-34 (Cancelled)